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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/599,842	10/11/2006	Rifat Ata Mustafa Hikmet	NL 040392	5424

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EXAMINER	
SCHINDLER, TRENT L	
ART UNIT	PAPER NUMBER
2879	
MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/599,842	HIKMET, RIFAT ATA MUSTAFA	
	Examiner	Art Unit	
	TRENT SCHINDLER	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 October 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/10/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

Rejections under 35 U.S.C. §112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 7, 8 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claim 7, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

3. Claim 8 recites the limitation "a switchable reflector positioned behind the color conversion cell." This limitation is ambiguous, because the claim does not establish which direction "behind" might be. Furthermore, claim 8 recites "in a first state of the color conversion cell," and "in a second state of the color conversion cell." It is unclear whether this first first state and second state are the same as the first and second states of claim 1. Therefore, for the purposes of examination, Examiner will consider any mirror position and any two states of the color conversion cell to satisfy the limitations of claim 8.

4. Claim 10 recites the limitation "the first frequency spectrum" and "the second frequency spectrum." There is insufficient antecedent basis for this limitation in the claim. For the purpose of examination, examiner assumes Applicant meant "the first emission spectrum" and "the second emission spectrum."

Rejections under 35 U.S.C. §102

Rejections under 35 U.S.C. §102 (b)

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-4 and 5-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Fukao et al. (US 6,211,931).

7. Regarding claim 1, Fukao discloses a color conversion cell (Fig 1) for adjusting a color or color temperature of light from a light source having a first emission spectrum (col. 8, line 17), the color conversion cell comprising a color converting substance in a matrix (col 3, line 5) held between two electrodes (12 and 16), the color converting substance having a second emission spectrum different from the first emission spectrum (intrinsic to any two different substances), the color conversion cell being shiftable between at least a first state wherein the color converting substance will absorb a first ratio, A1 of light incident on the cell, emit light with the second emission spectrum, and transmit a second ratio, T1, of light incident on the cell, and a second state wherein the first ratio, A2, is smaller than in the first state and wherein the second ratio, T2, is larger than in the first state (col 5, line 29-58).

8. Regarding claim 2, Fukao discloses the device of claim 1, and further discloses the color converting substance comprising anisometric color converting particles having a high absorption orientation and a low absorption orientation in relation to light incident on the cell, the color conversion cell further comprising means for, when the cell is in the first state, orienting the anisometric color converting particles at least substantially in their high absorption orientation relative to the source light illuminating the cell, and for, when the cell is in the second state, orienting the anisometric color converting particles at least substantially in their low absorption orientation relative to the source light illuminating the cell (col 5, line 29-58).

9. Regarding claim 3, Fukao discloses the device of claim 2, and further discloses the means for orienting comprising a liquid crystal material and wherein the anisometric color

converting substance is mixed with liquid crystals to provide a controllable orientation of the anisometric particles (col 5, line 29-58).

10. Regarding claim 4, Fukao discloses the device of claim 2, and further discloses the means for orienting comprising a suspended particle device and wherein the anisometric color converting particles are suspended in the suspended particle device to provide a controllable orientation of the anisometric particles (col 5, line 29-58).

11. Regarding claim 6, Fukao discloses the device of claim 2, and further discloses the color conversion cell providing a longer average pathlength of the source light in the matrix containing the color converting substance inside the cell in its first state, than in its second state (col 5, line 29-58. Since isotropic scattering will be reduced when the particles are aligned, this is an intrinsic property of the dichroic dye of Fukao).

12. Regarding claim 7, Fukao discloses the device of claim 6, further comprising electrically controllable scattering media (the dichroic dye referenced in col 5, line 29-58). Examiner notes that the phrase “such as polymer dispersed liquid crystal or liquid crystal gel or chiral texture” carries no patentable weight, since it merely recites a non-exclusive list of possible candidates for the scattering media.

13. Claim 5 rejected under 35 U.S.C. 102(b) as being anticipated by Feenstra et al. (US 2005/0104804).

14. Feenstra discloses a color conversion cell (Fig. 5) for adjusting a color or color temperature of light from a light source having a first emission spectrum (para. 31), the color conversion cell comprising a color converting substance in a matrix (the dye described in para. 45, Fig. 5) held between two electrodes (12, 17), the color converting substance having a second emission spectrum different from the first emission spectrum (intrinsic to any two different substances), the color conversion cell being shiftable between at least a first state wherein the

color converting substance will absorb a first ratio, A_1 of light incident on the cell, emit light with the second emission spectrum, and transmit a second ratio, T1, of light incident on the cell, and a second state wherein the first ratio, A2, is smaller than in the first state and wherein the second ratio, T2, is larger than in the first state (para. 48), further comprising an electrowetting cell with the color converting substance mixed with a liquid (para. 45).

Rejections under 35 U.S.C. §102 (e)

15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

16. Claims 9 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Li et al. (US 2004/0150613 A1).

17. Regarding claim 9, Li discloses a light emitting device (Fig. 4) with adjustable color or color temperature, comprising a light source having a first emission spectrum (428) and a color conversion cell positioned to be illuminated by at least part of the light from the light source (Fig. 4), the color conversion cell comprising a color converting substance (422) in a matrix held between two electrodes (410, 412), the color converting substance having a second emission spectrum different from the first emission spectrum (abstract), the color conversion cell being shiftable between at least a first state wherein the color converting substance will absorb a first ratio, A1, of light incident on the cell, emit light with the second emission spectrum, and transmit a second ratio, TI, of light incident on the cell, and a second state wherein the first ratio, A2, is smaller than in the first state and wherein the second ratio, T2, is larger than in the first state (abstract).

18. Regarding claim 12, Li discloses a method for adjusting the color or color temperature of light from a light source having a first spectrum, the method comprising the steps of (Fig. 3, 4)

- providing a color conversion cell comprising a color converting substance in a matrix held between two electrodes,
- illuminating the matrix with the light source,
- absorbing at least part of the source light illuminating the matrix in/by the color converting substance,
- emitting light with a second emission spectrum from the color converting substance,
- adjusting a voltage between the two electrodes to increase or decrease the amount of source light absorbed by the color converting substance and the amount of light with a second emission spectrum emitted by the color converting substance.

Rejections under 35 U.S.C. §103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

20. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukao in view of Hikmet (5,762,823). Fukao discloses the device of claim 1, but does not disclose a switchable reflector.

21. However, Hikmet teaches the use of a filter in a lighting device comprising a switchable reflector with an electrically-controlled variable reflection band, in order to selectively reflect some wavelengths, while transmitting others (col. 2, line 4-12).

22. A person of ordinary skill in the art would recognize that the reflector of Hikmet, if placed opposite the viewed side of the device of Fukao, could enhance the brightness and contrast of

desired colors by reflecting the wavelengths corresponding to those colors to the viewer, but transmitting others.

23. It would therefore have been obvious to a person of ordinary skill in the art at the time the invention was made to use the teaching of Hikmet in the device of Fukao, since this would improve the brightness and contrast of desired colors.

24. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Li in view of Hikmet (5,762,823). Li discloses the device of claim 9, but does not disclose a reflector.

25. However, Hikmet teaches the use of a filter in a lighting device comprising a switchable reflector with an electrically-controlled variable reflection band, in order to selectively reflect some wavelengths, while transmitting others (col. 2, line 4-12).

26. A person of ordinary skill in the art would recognize that the reflector of Hikmet, if placed between the light source and the color conversion cell of Li, could enhance the brightness and contrast of desired colors by transmitting the light in the emission spectrum of the light source to the photoluminescent particles, and reflecting the wavelengths corresponding to the color of the photoluminescent particles to the viewed side of the cell.

27. It would therefore have been obvious to a person of ordinary skill in the art at the time the invention was made to use the teaching of Hikmet in the device of Fukao, since this would improve the brightness and contrast of desired colors.

28. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Li. Li disclose the device of claim 9, but does not disclose different color conversion cells being arranged behind one another.

29. However, a person of ordinary skill in the art would recognize that stacking multiple individually-controllable color conversion cells would provide a capability to create an increased range of colors, with a broader degree of control, since the principle of creating colored light by the combination of other wavelengths is an elementary teaching of the art.

30. It would therefore have been obvious to arrange multiple color conversion cells comprising different color converting substances behind one another as seen from the light source to allow light from the light source to illuminate a succeeding cell through a preceding cell, since this would provide a capability to create an increased range of colors, with a broader degree of control.

Conclusion

31. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TRENT SCHINDLER whose telephone number is (571)270-3321. The examiner can normally be reached on Monday through Thursday, 7:30 am to 5:00 pm ET.

32. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

33. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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